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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/477,101	01/04/2000	LINDEN A. DECARMO	N0003/7030	8713

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EXAMINER	
ALI, SYED J	

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/477,101	DECARMO, LINDEN A.	
	Examiner	Art Unit	
	Syed J. Ali	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 25, 2005 has been entered. Claims 1-19 are presented for examination.

2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Rejections - 35 USC § 103

3. **Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brent et al. (USPN 5,549,864) (hereinafter Brent) in view of Sundaresan (USPN 6,289,369) in view of Krishnaswamy et al. (USPN 6,909,708) (hereinafter Krishnaswamy).**

4. As per claim 1, Brent teaches the invention as claimed, including in a computer system, a method, performed at a manager (col. 7 lines 24-30), of distributing events among a plurality of queues (col. 4 lines 52-54), the method comprising:

a. determining a workload level for each of the plurality of queues (col. 4 lines 57-64);

b. determining that a first of the plurality of queues is inefficiently handling its assigned workload (col. 4 lines 57-64); and

c. reassigning an event from the first queue to a second of the plurality of queues (col. 5 lines 1-15).

2. Sundaresan teaches the invention as claimed, including associating threads and queues on a one-to-one basis (col. 8 lines 40-64), such that distribution of events among a plurality of queues amounts to distributing events among a plurality of threads (col. 5 lines 59-67).

3. Krishnaswamy teaches the invention as claimed, including application of conventional load balancing techniques to internet telephony (col. 107 lines 33-41), where call flow events are treated in the same manner as queued tasks or events in any other computer system (cols. 73-77: conventional computing systems; col. 78: using the internet for telephone applications; cols. 92-96: using object oriented programming techniques to support internet telephony).

4. Brent discusses at length the benefits of allowing load balancing between queues by moving queued elements, including workload imbalance and possible data loss if a processor fails (col. 2 lines 28-39). Furthermore, Brent indicates that the processors utilizing the load balancing mechanism may service any type of request or task that a computer system may generate (col. 3 lines 5-13). Sundaresan expands upon the one-to-one relationship of queues and processors to include "sticky" threads, where each processor has a thread that services a dedicated queue. The benefits of such a system include better cache utilization and the ability to have a thread learn about its data access patterns (col. 8 lines 40-46). Krishnaswamy indicates that load balancing is particularly important in internet telephony systems, such that calls are properly routed with minimal overhead or backlog.

It would have been obvious to one of ordinary skill in the art to combine Brent, Sundaresan, and Krishnaswamy since the technology of internet telephony is one that is in particular need of efficient load balancing techniques, as telephone communication demands minimal delay. Though any load balancing technique that efficiently distributes or dynamically adjusts workload would be a suitable combination with Krishnaswamy, the algorithm employed by the combination of Brent and Sundaresan provides a way of treating each internet telephony gateway as a separate processor. This allows an efficient initial load balancing among the gateways, while also accounting for changes by dynamically redistributing data in the event of an imbalance or failure of a particular gateway.

5. As per claim 2, Brent teaches the invention as claimed, including the method according to claim 1 further comprising the step:

d. processing the call flow events associated with each of the plurality of threads (col. 4 line 65 - col. 5 line 1).

6. As per claim 3, Brent teaches the invention as claimed, including the method according to claim 1 wherein step c. further comprises:

c1. removing a call flow event from the call flow event queue associated within the first thread (col. 4 lines 57-64); and

c2. placing the removed call flow event in the call flow event queue associated with the second thread (col. 5 lines 1-15).

7. As per claim 4, Brent teaches the invention as claimed, including the method according to claim 1 wherein step c. further comprises:

c1. selecting the second thread in accordance with the number of call flow events in the call flow event queue associated with the second thread (col. 5 lines 1-6).

8. As per claim 5, Brent teaches the invention as claimed, including the method according to claim 1 wherein step c further comprises:

c1. allocating the call flow events to a thread within the computer system with the least call flow load (col. 5 lines 1-6).

9. As per claim 6, Brent teaches the invention as claimed, including the method according to claim 1 wherein step b further comprises:

b1. determining whether the number of call flow events in the call flow event queue associated with a thread has exceeded a predetermined criteria (col. 4 lines 57-64).

10. As per claim 7, Brent teaches the invention as claimed, including the method according to claim 1, wherein step a comprises:

a1. assigning call flow events among the call flow queues associated with the respective plurality of threads in the system (col. 5 lines 1-15).

11. As per claim 17, Brent teaches the invention as claimed, including the method according to claim 1, further comprising:

d. determining whether a call flow balance has been achieved among the plurality of threads (col. 4 lines 57-64);

e. processing the call flow events associated with each of the plurality of threads (col. 4 line 65 - col. 5 line 1).

12. As per claims 8-14 and 18, Brent teaches the invention as claimed, including a computer program product having a computer usable medium having program code embodied in the medium, operable to perform the method of claims 1-7 and 17, respectively (col. 7 lines 24-32).

13. As per claims 15-16 and 19, Brent teaches the invention as claimed, including an apparatus adapted to perform the method of claims 1-7 and 17, respectively (col. 7 lines 24-32).

Response to Arguments

5. **Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new grounds of rejection.**

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Syed Ali
July 6, 2005

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SUPERVISORY PATENT EXAMINER
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